

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Attorney Docket No. P03002US1A; 295620-214153

Group Art Unit:	1711	)
		)
Examiner:	Asinovsky	)
		)
Inventor:	Wang, et al.	)
		)
Serial No.:	10/791,049	)
		)
Filed:	March 2, 2004	)
		)
For:	Method of Making Nano-Particles	)
	of Selected Size Distribution	)

**DECLARATION UNDER 37 CFR § 1.132**

Sir:

We, Dr. Xiaorong Wang and Dr. James Pawlow, do hereby declare:


1. That we are employed as Research Scientists at Bridgestone Americas Center for Research and Technology in Akron, Ohio, an affiliate of the assignee of the current application.
2. That Dr. Xiaorong Wang is an inventor of the subject matter of the above-referenced U.S. Patent Application Serial No. 10/791,049, filed March 2, 2004, and that Dr. James Pawlow, although not an inventor on the current application, has worked on related projects at Bridgestone Americas Center for Research and Technology having to do with nanoparticles.
3. That Dr. Xiaorong Wang has a Ph. D. in Material Science, and has worked full-time as a research scientist for 14 years, and has gained significant experience working with nanoparticle technology, having worked in this general area for at least 14 years. That Dr. James Pawlow has a Ph. D. in Chemistry and has worked full-time as a research scientist for 7 years, and has gained significant experience


working with nanoparticle technology, having worked in this general area for at least 2 years.

4. That we make this joint declaration to provide evidence in support of the subject matter of all the pending claims of the '049 application.
5. That U.S. 6,437,050 to Krom ("Krom") does not disclose or teach a nanoparticle that includes any mono-block polymer chains for the reasons that follow.
6. That while Krom at column 3, lines 16-19, discloses that "additional conjugated-diene monomer and/or vinyl-substituted aromatic hydrocarbon monomer can be added to the polymerization mixture as desired," this addition would not result in a mono-block polymer becoming part of the nanoparticle. Even if the living polymerization is not terminated before the additional monomer is added, the added monomer would only add on to the living end of the existing diblock polymer chains in the nanoparticles.
7. That a new monoblock polymer chain would only develop with subsequent monomer addition after the micelle has formed in two circumstances: (1) if additional initiator were added along with the new monomer addition; or (2) if a chain transfer reaction occurred.
8. That Krom does not disclose adding additional initiator with the new monomer addition. Thus, the first circumstance in which a new monoblock polymer chain might become part of the micelle and later nanoparticle is not disclosed or taught by Krom.
9. That Krom does not disclose any conditions that would favor a chain transfer reaction, such as addition of chain transfer agents. Therefore, as taught by H. Hsieh and R. P. Quirk, Anionic Polymerization: Principles and Practical Applications, a well-respected, authoritative text on living anionic polymerization reactions, no chain transfer would be expected to occur in living anionic polymerization reactions such as those disclosed in Krom.
10. That the Krom patent would not teach or suggest to one of ordinary skill in the art a nanoparticle with both diblock and monoblock polymer chains.

11. That combining the disclosure of the core-shell nanoparticles in Krom or in EP 0 265 142 (“EP ‘142”) with the process of providing polydispersity to polymeric/clay compositions in U.S. 6,737,486 to Wang (“Wang ‘486”) would not be effective to provide a nanoparticle with the polydispersity as claimed in the present application. Adding the inorganic layered clay material of Wang ‘486 to the nanoparticles of Krom or Wang ‘486 will not give nanoparticles of broad polydispersity. Therefore, one of ordinary skill in the art would not combine the teaching of Wang ‘486 with Krom or EP ‘142 to arrive at the nanoparticles of the present claims.
13. We further declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001, of Title 18, of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed this 27 day of June, 2008.

  
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Xiaorong Wang, Ph.D.

  
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James Pawlow, Ph.D.